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APPLICATION NUMBER: 60/549,621

FILING DATE: *March 02, 2004*

RELATED PCT APPLICATION NUMBER: PCT/US05/06620

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## PROVISIONAL PATENT APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 C.F.R. §1.53(c) PRO  
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19587 60/549621

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## TITLE OF INVENTION (500 characters maximum)

ELECTRONIC BOOK SYSTEM FOR TACTILE SENSING

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PLACE BAR CODE  
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## ENCLOSED APPLICATION PARTS (check all that apply)

<input checked="" type="checkbox"/> Specification - Number of Pages: <u>5</u>	<input type="checkbox"/> CD(s), Number: _____
<input checked="" type="checkbox"/> Drawing(s) - Number of Sheets: <u>6</u>	<input type="checkbox"/> Other (specify) _____
<input type="checkbox"/> Application Data Sheet	

## METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT

- Applicant(s) claim Small Entity Status under 37 C.F.R. §1.27 as:
  - an Independent Inventor, or  a Small Business Concern, or  a Non-Profit Organization.
- A check in the amount of \$160.00 under 37 CFR §1.16(k) (Fee Code 1005) is enclosed herewith.
- The Commissioner is hereby authorized to charge or credit Deposit Account No. 50-1017 as indicated below.
  - Provisional Application Filing Fee in the amount of \$160.00 under 37 CFR §116(k) (Fee Code 1005).
  - Any deficiencies or overpayments in the above-calculated fee.
  - Any additional fees required under 37 CFR §1.16 or §1.17.

The invention was made by an agency of the United States Government or under a contract with an agency of the U.S. Government.

No.

Yes, the name of the U.S. Government agency and the Government contract number are:

Respectfully submitted,

*March 2, 2004*

Date

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## TITLE OF THE INVENTION

Electronic Book System For Tactile Sensing

## BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

The foregoing summary, as well as the following detailed description of preferred 5 embodiments of the invention, will be better understood when read in conjunction with the appended drawings, Figs. 1-12. For the purpose of illustrating the invention, there is shown in these drawings embodiments which are presently preferred. It should be understood, however, that the invention is not limited to the precise arrangements and instrumentalities shown.

## DETAILED DESCRIPTION OF THE INVENTION

10 Certain terminology is used in the following description for convenience only and is not limiting. The words "right," "left," "lower" and "upper" designate directions in the drawings to which reference is made. The words "inwardly" and "outwardly" refer to directions toward and away from, respectively, the geometric center of base unit or a page spread of the electronic book system, and designated parts thereof. The terminology includes the words noted above, 15 derivatives thereof and words of similar import.

Additionally, as used in the claims and the corresponding portions of the specification, the word "a" means "at least one." Further, the word "or" has the meaning of a Boolean inclusive "Or". For example, the phrase "A or B" means "A" alone or "B" alone or both "A" and "B".

20 A digital image of a first preferred embodiment of the electronic book system for tactile sensing, generally designated 10, and hereinafter referred to as the "EBS" 10 in accordance with the present invention is shown in Fig. 1. The EBS 10 is an interactive, finger-based, electronic learning system that allows a child to activate electronic speech by pointing to words or objects on the cover and pages of multi-page books. The principle components of the system are a base 25 unit 20 housing system electronics, a starter book 30, such as the Little People Farm 40 (Figs. 2 and 4-5), removably mountable in a book well in the base unit, and read only memory ("ROM") (not shown) within the base unit having stored therein software with the content of the starter book. The starter book may be supplemented by a library of supplemental books, each associated with a ROM cartridge removably insertable in the base unit. The ROM cartridges 30 have stored therein software and data relating to the content of the supplemental books. In

addition to book-based activity, a graphic of an eight-key musical keyboard and graphics of music related objects on the upwardly facing surface of the bottom of the book well and additional software in the ROM in the base unit allow music-based book-well game play when a book is not present in the book well. A digital image of the EBS base unit without a book in the 5 book well is shown in Fig. 3.

The EBS base unit preferably is provided with a removable dummy ROM cartridge (without software or data) for aesthetic purposes as the software or data required for the starter book and the music-based book-well game play are in the non removable ROM in the base unit.

The general functionality of the base unit and the electronics in the base unit are 10 substantially the same as the functionality and electronics disclosed in detail for the base unit in pending U.S. Non-Provisional Patent Application 10/448,583 filed May 30, 2003 and entitled “An Electronic Learning Device For An Interactive Multi-Sensory Reading System”. Accordingly, the base unit 20 has a position sensor for detecting the selection of one or more active areas or objects appearing on the upper surface of the book-well or on the pages of a book 15 in the book well as disclosed in detail in U.S. Non-Provisional Patent Application No. 10/448,582 filed May 30, 2003 and entitled “Interactive Multi-Sensory Reading System Electronic Teaching/Learning Device.” The base unit electronics also provides an autonomous optical page identification system disclosed in detail in International Application PCT/US04/02518 filed May 30, 2003 and entitled “Interactive Electronic Device with Optical 20 Page Identification System” (U.S. Provisional Application No. 60/443,967 entitled “Optical Page Identification System”). Each of the above cited applications is incorporated herein by reference.

Referring to Fig. 3, the upwardly facing surface of the bottom of the base unit book well 50 has selectable graphic keys simulating a musical key board that allows a child to play a scale 25 on an instrument such a xylophone. Sounds related to other musical instruments can be activated by selecting the corresponding graphic also appearing of the surface of the book well.

Referring to Figs. 2 and 10-11, the books configured for use with the base unit are bound either with a spiral binding (Fig. 2) or a generally “D” shaped binding (Figs. 2 and 11). However, other well known binding methods that are safe for toddlers to user may be used to

bind the books. Alternatively, substantially planar cards, such as the cards shown in Fig. 9, may be removably placed in the book well instead of bound books.

The graphic layouts appearing on the page spreads of the books and the cards preferably, but not necessarily, include one or more selectable objects that have some tactile feature. For 5 example, referring to Fig. 9, the picture frame 101, the bed spread 102, Zoe's body 103 and Elmo's body 104 have fabric overlays with a different texture. The tactile features are not limited to fabric textures, and may include other textures such as the cardboard texture of the box 105 and the wood texture of the box 106 also appearing in Fig. 9. The tactile features are not limited to the above examples and may include features associated with any known material 10 or selectable object such as raised printing, stickers and embossed stickers, paper including sand paper and foil paper. Topographical textural features associated with molded polymeric materials also are included within the meaning of the phrase "tactile features".

The tactile features associated with a selectable object appearing on a page spread or card may be accessible only when the page spread or card on which the tactile feature is 15 attached or, alternatively, may be accessible when the user is viewing page spreads or cards other than the page spread or card on which the tactile feature is attached. For example, referring to Figs. 4-5, the cover 110 (Fig. 4) of the "Little People Farm" book and the first underlying page spread 112 have a cut out 114 in the lower right corner, allowing the farmer 116 on a page spread 118 underlying the first page spread 112 to be accessible when the cover 20 110 or the first page spread 112 are viewable by the user. Accordingly, tactile features, if any, associated with the farmer 116 are selectable at times other than only when the page spread 118 is viewable. In contrast, animals 120 appearing on the first underlying page spread 112 are only viewable when the first page spread 112 is viewable.

Referring to Figs. 6-8, in addition to the cut outs 114 discussed above, circular die cuts 25 130 on successively overlying page spreads provide access to underlying objects with tactile features. The shape of the die cuts need not be circular as they can be any arbitrary shape without departing from the scope and spirit of the invention. The book shown in Figs. 6-8 comprises a plurality of bound pages including a cover page 132, a first page spread 134, and a last page spread 136. The dog 138 in the right hand portion of the last page spread 136 has a 30 body with a fur spot 140 as a tactile feature. The fur spot 140 is accessible through the circular die cuts 130 in register with and overlay the fur spot 140. Accordingly, for a viewable page

spread, such as the page spread 134 (Fig. 7) having a right die cut 130a and a left die cut 130b on the corresponding right and left hand portions of the page spread, only the right die cut 130a provides accessibility to the underlying fur spot 140. The left die cut 130b does not overlay an object with tactile features. However, another novel feature of the present invention is that the 5 selection of the left die cut (e.g., placing a finger in the circular hole) may cause the base unit to produce an audible output related to a selectable object, if any, underlying the left die cut 130b or a predetermined audible output unrelated to the underlying object or a change in the mode of operation of the device.

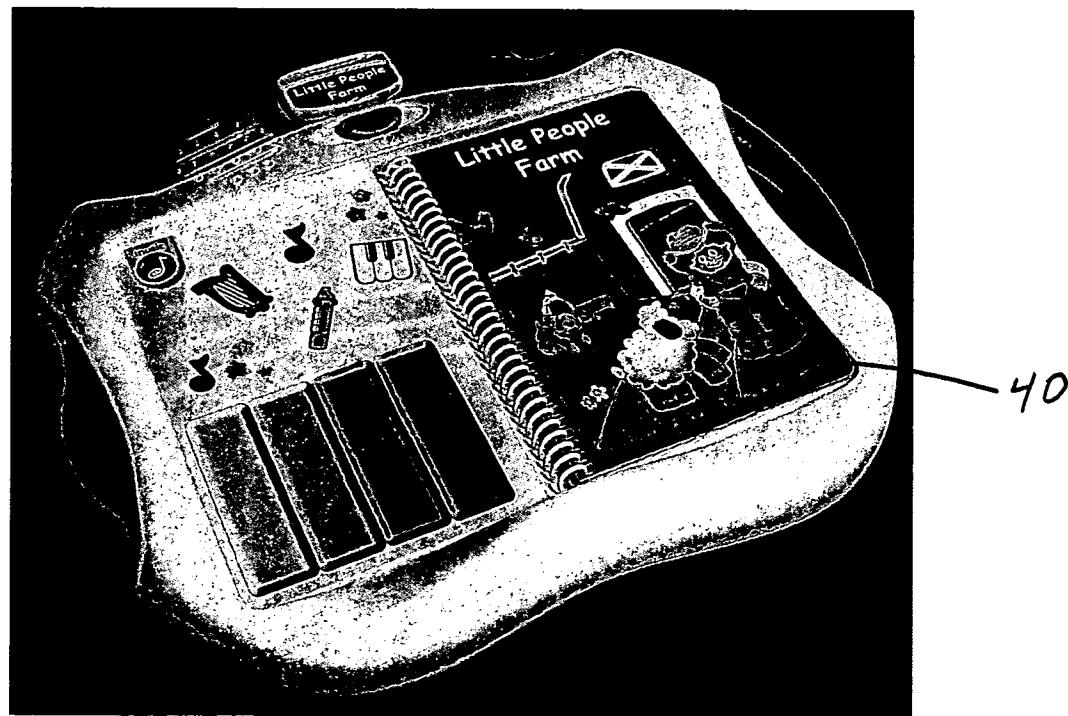
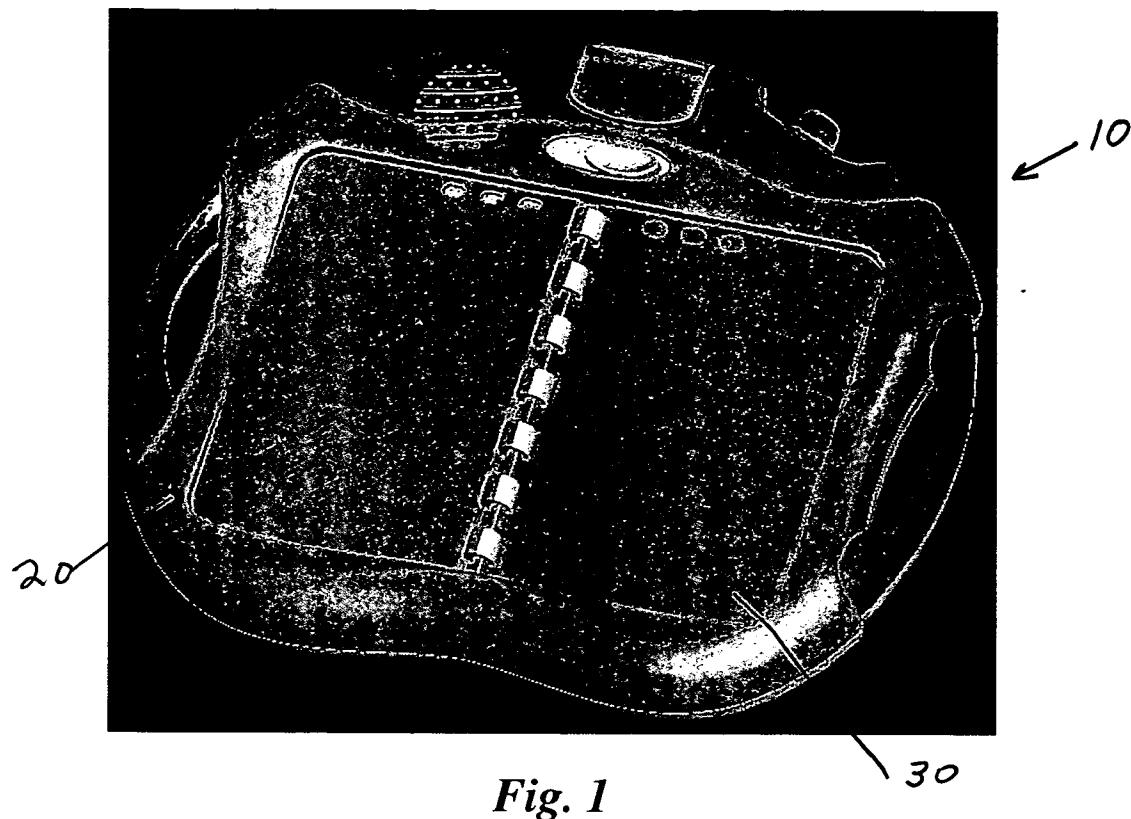
The interaction between the user and EBS is script based. Any and all of the modes of 10 operation (story, word, spelling, phonics, surprise, find, count, and music) discussed in pending U.S. Non-Provisional Patent Application 10/448,583, incorporated by reference above, are available to the script writer. In addition, new modes the instructions for which may be stored in the removable ROM cartridges associated with the supplemental books and cards may provide additional functionality for the EBS. The typical interaction relating to the tactile 15 features of one or more of the associated selectable objects include but are not limited to the following: a non-prompted touch of an object having a tactile feature may cause the EBS to produce an attribute associated with the object as an audible output, (e.g., barking, if the object is a fur spot of a dog) or, alternatively, an audible output associated with the tactile feature (e.g., I have fur, if the fur spot of the dog is touched). Prompted interactions include such prompts as 20 "touch something furry" followed by a positive acknowledgement if the fur spot of the dog is touched, a negative acknowledgement if an incorrect selection is made. A hint for a next attempt may also be provided. They gist of the invention relating to the tactile features is to provide script based interaction directed to providing the user with either an entertaining or learning experience exploring tactile features using an interactive electronic book system.

25 Accordingly, there is no limit intended on the nature of the interaction provided.

As stated above, the nature of the configuration of a book with a plurality of overlying die cuts providing accessibility to a selectable object with tactile features on an underlying page is that as the right hand portion of a two page spread is turned to view the right hand portion of an underlying page spread, the position of the die cut that is in registry with the tactile feature 30 when positioned on the right may not be in registry with another object with a tactile feature when the die cut is positioned on the left. Accordingly, the present invention provides for an

interactive experience even if the die cut does not provide accessibility to a tactile feature. As the interaction is scripted, upon selection of a die cut that is not associated with a tactile feature, the base unit electronics may respond by changing to another mode of operation, such as music mode in which a predetermined music-related output is produced, or any other output the script writer may provide including an output associated with an underlying but selectable object, if any, that is in register with the die cut.

It will be appreciated by those skilled in the art that changes could be made to the embodiments described above without departing from the broad inventive concept thereof. It is understood, therefore, that this invention is not limited to the particular embodiments disclosed, 10 but it is intended to cover modifications within the spirit and scope of the present invention as defined by the appended claims.



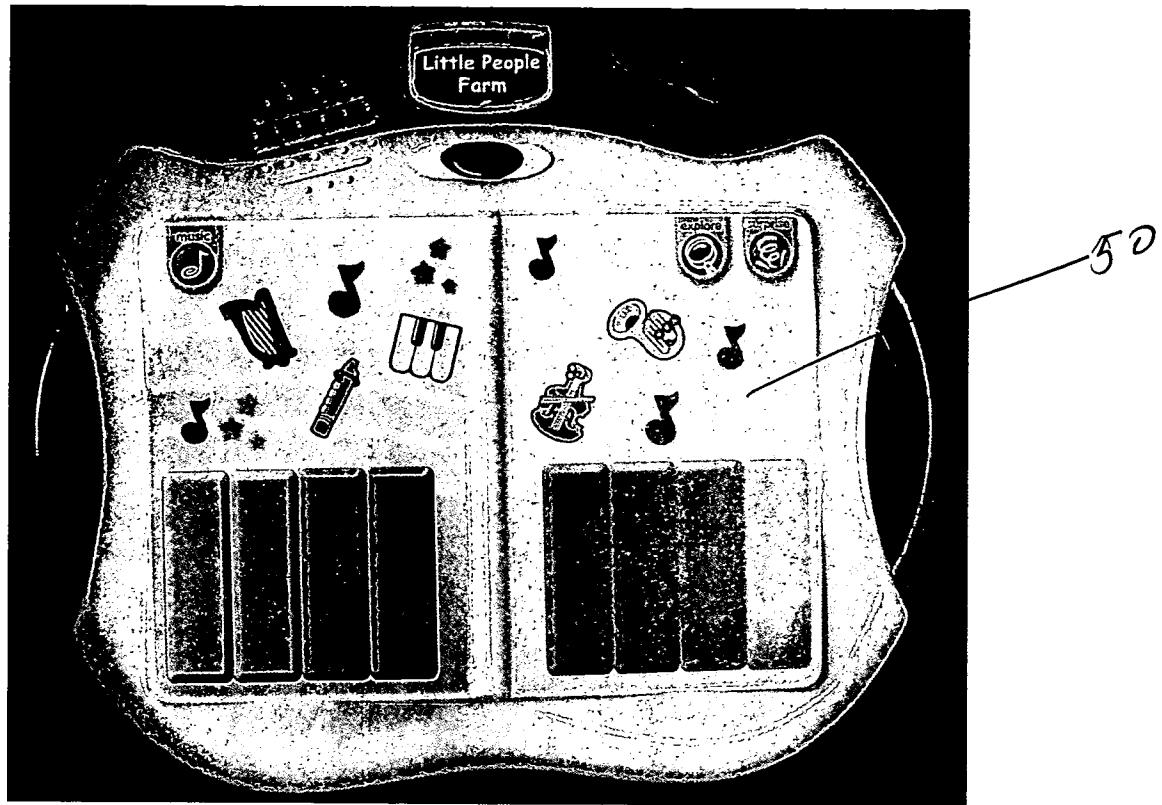


Fig. 3

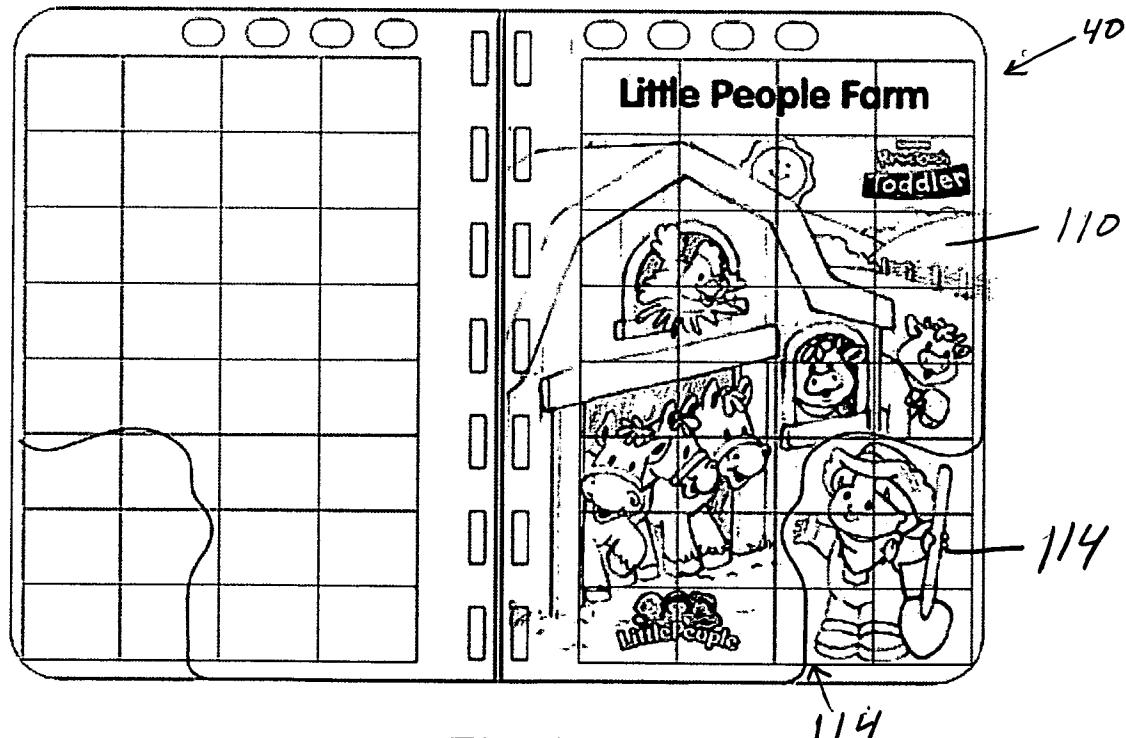


Fig. 4

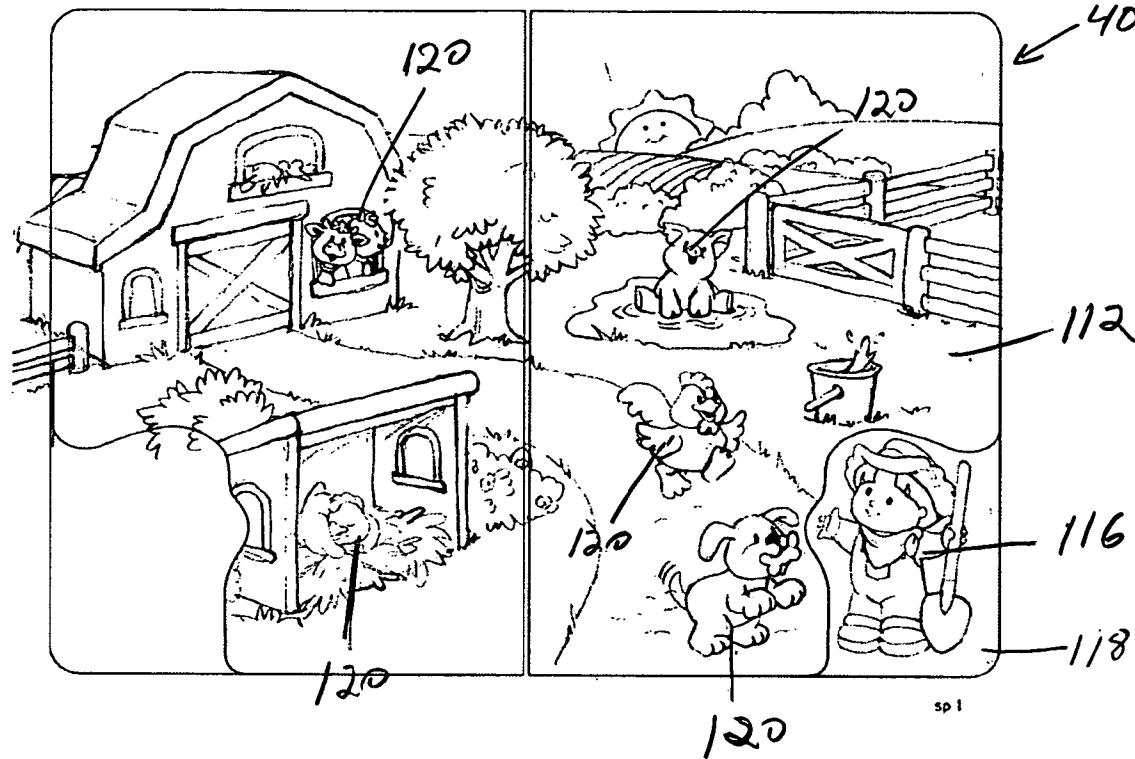
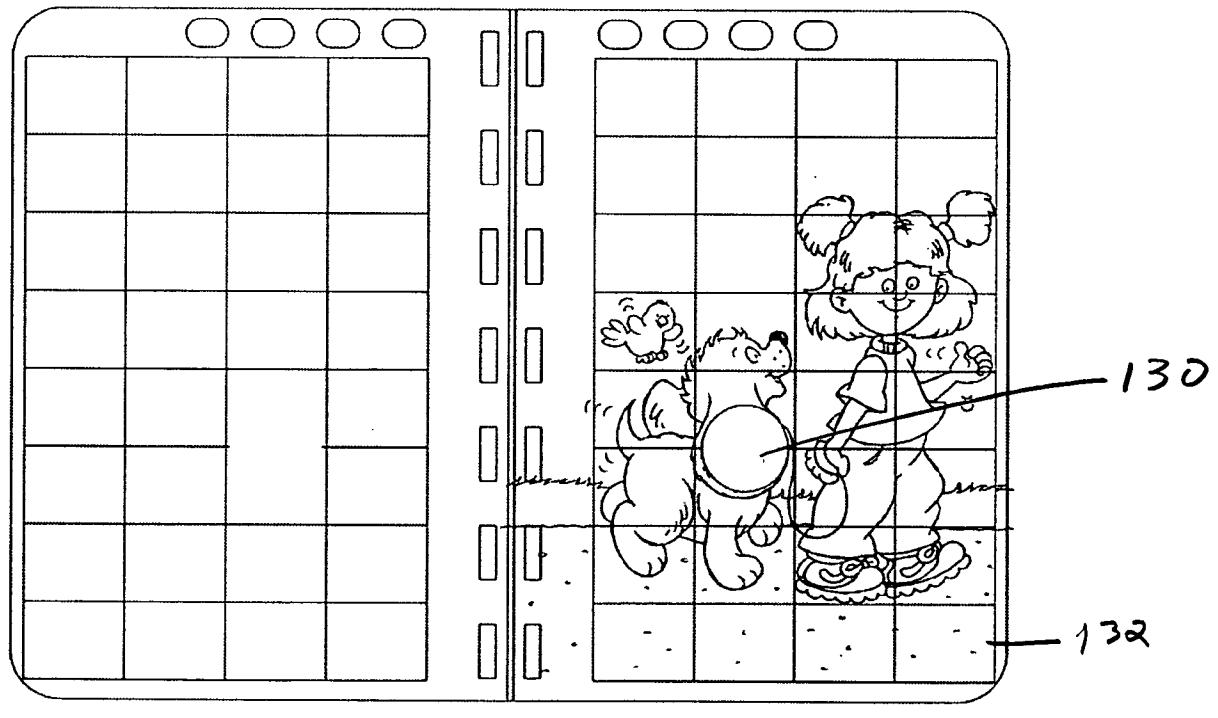


Fig. 5



Puppy Cover

Fig. 6

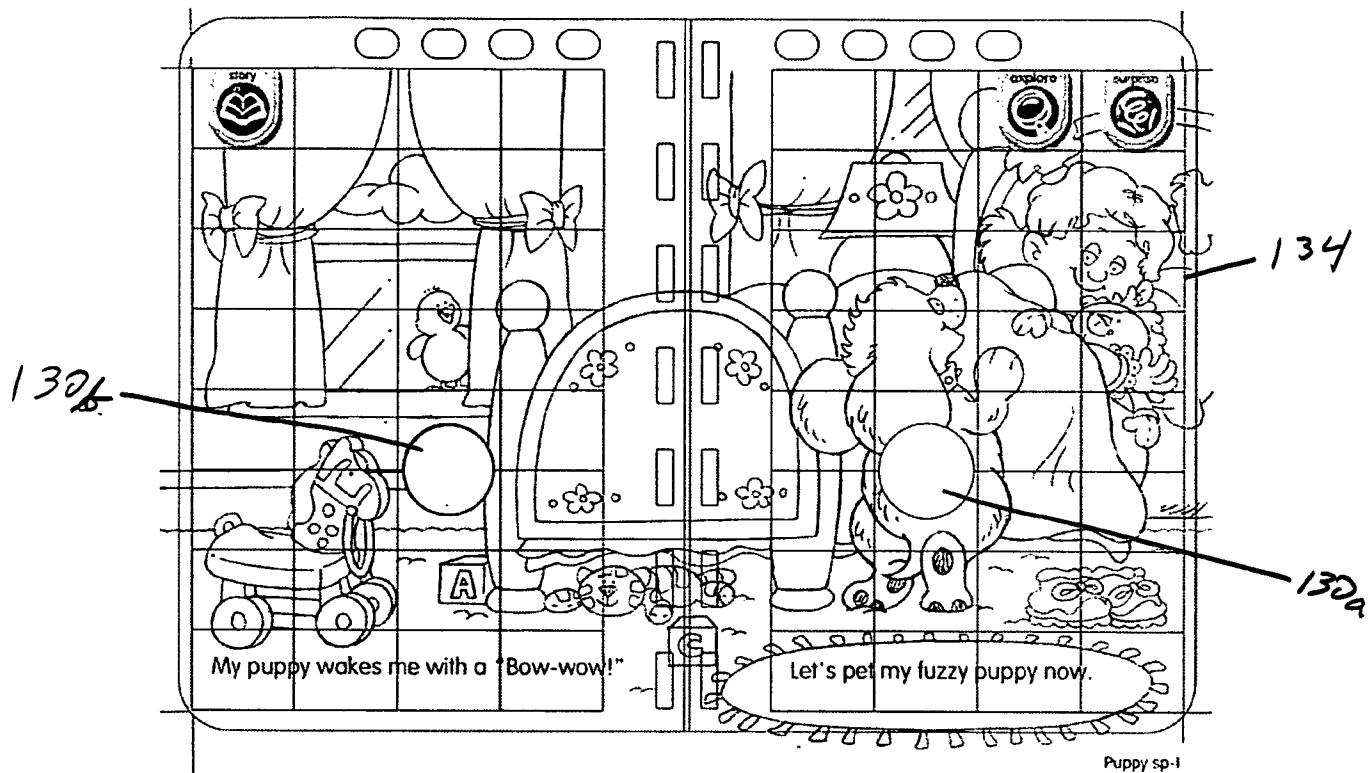


Fig. 7

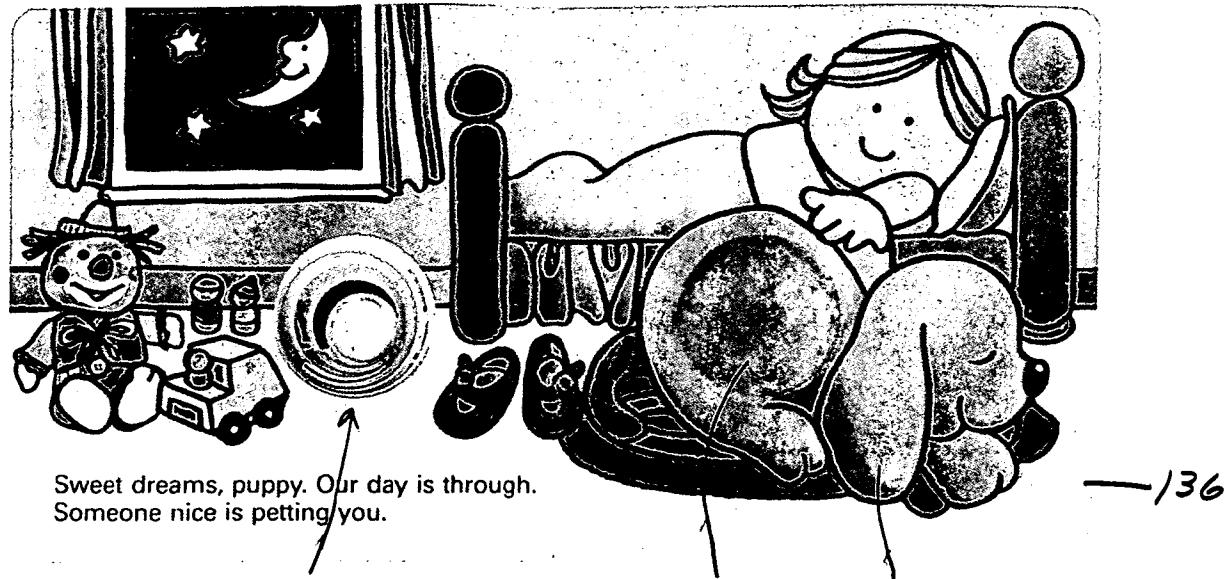


Fig. 8

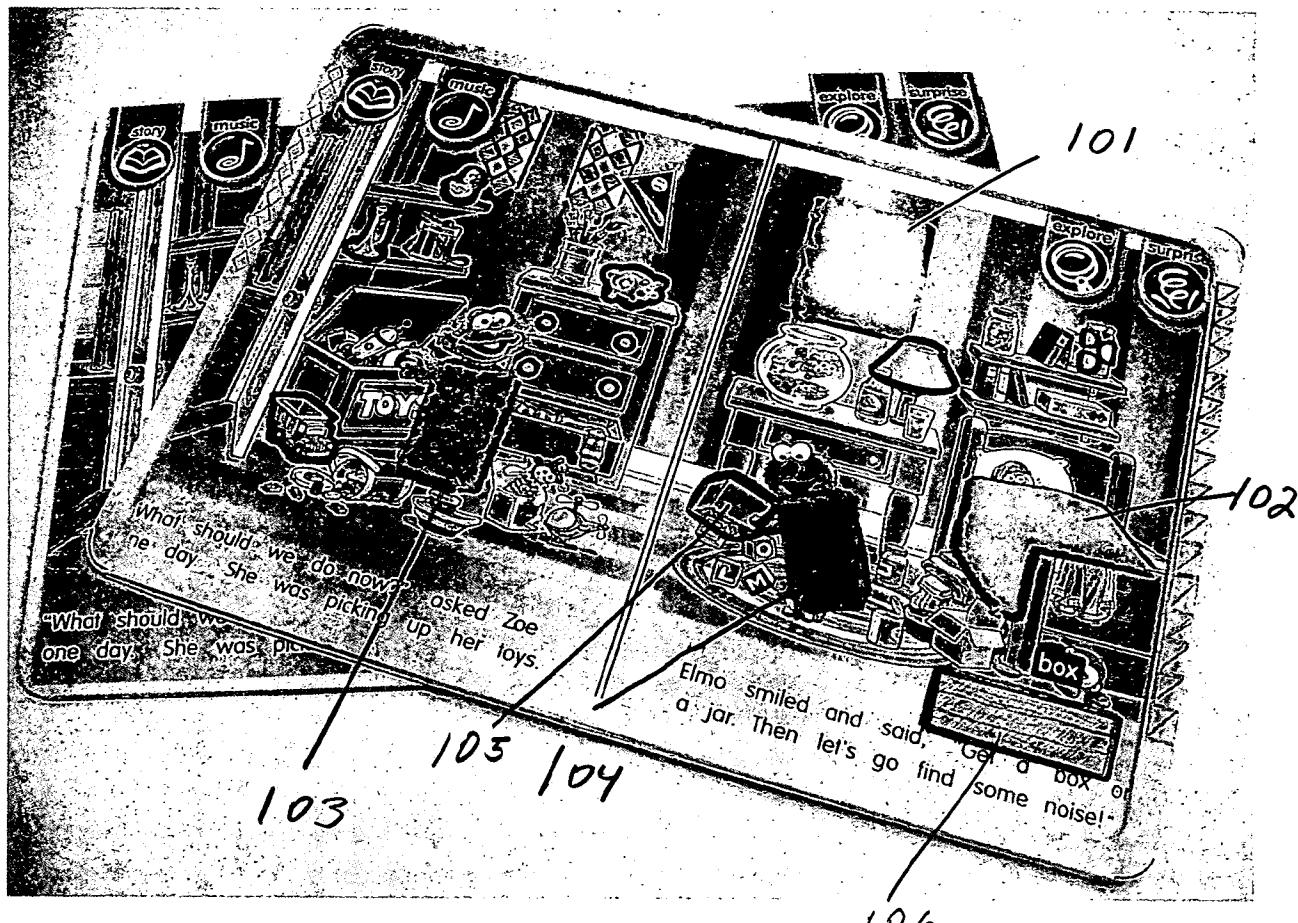


Fig. 9

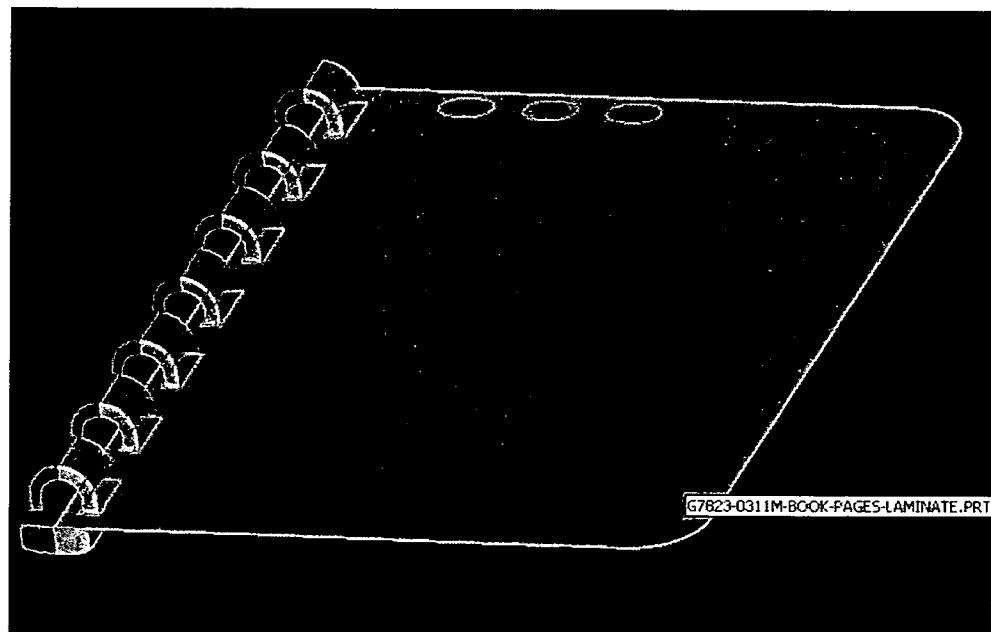
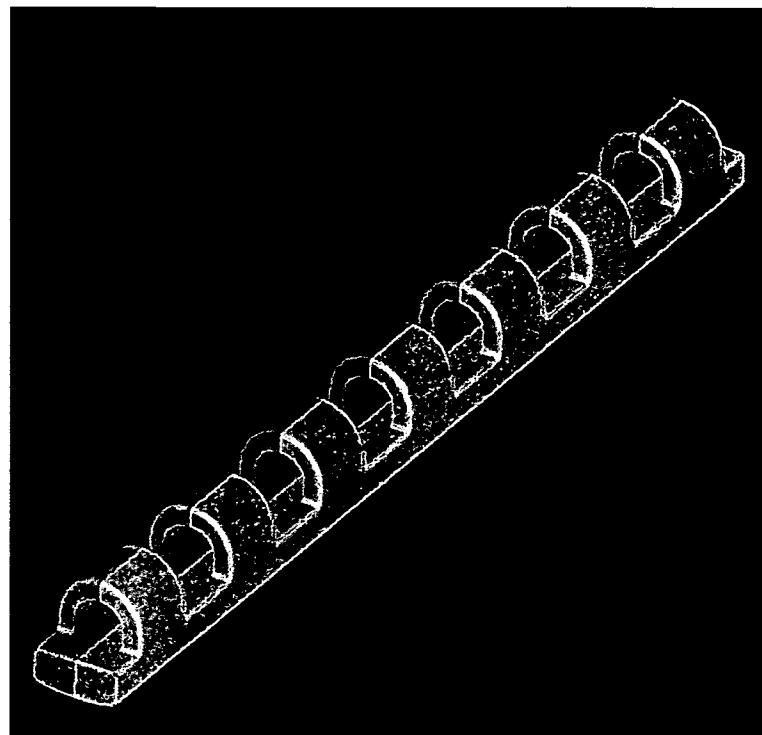
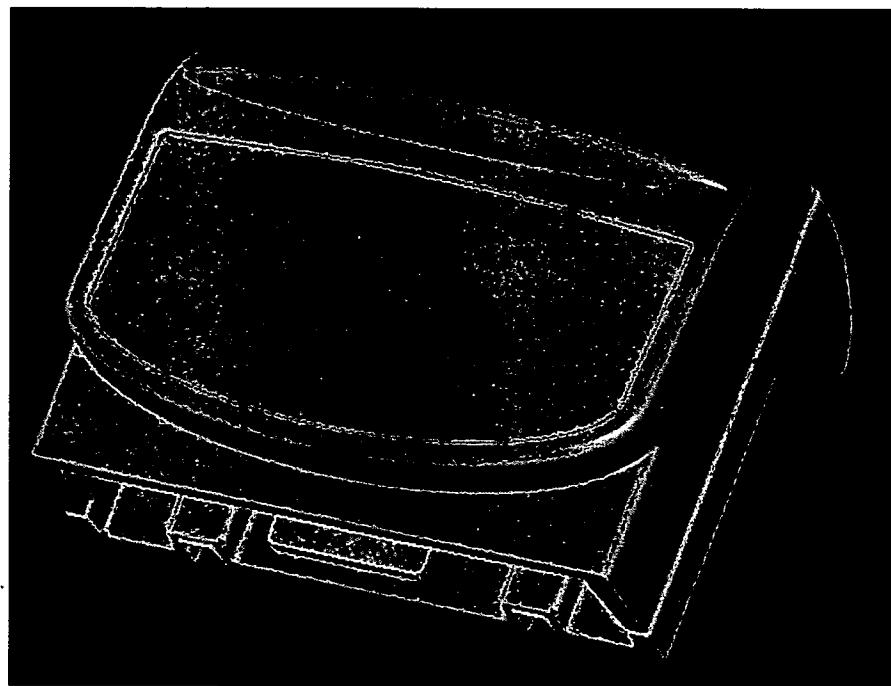


Fig. 10

Title: Electronic Book System for Tactile Sensing  
Inventor:  
Exp. Mail #: EV 199928621 US Cust. No.: 570  
Atty. Docket No. 9968-115US



*Fig. 11*



*Fig. 12*

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